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“Exhibit A”

Supercoiling

supercoiling

(Science: molecular biology) In circular DNA or closed loops of dNA, twisting of the DNA about its own axis changes the number of turns of the double helix.

If twisting is in the opposite direction to the turns of the double helix, i.e. Anticlockwise, the dNA strands will either have to unwind or the whole structure will twist or supercoil termed negative supercoiling.

If twisting is in the same direction as the helix, clockwise, which winds the dNA up more tightly, positive supercoiling is generated. DNA that shows no supercoiling is said to be relaxed

Supercoiling in circular DNA can be detected by electrophoresis because supercoiled dNA migrates faster than relaxed DNA. Circular DNA is commonly negatively supercoiled and the DNA of eukaryotes largely exists as supercoils associated with protein in the nucleosome. The degree of supercoiling can be altered by topoisomerases.

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